



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,144	04/17/2001	Hiroko Iwasaki	2271/50717-AY	7345

7590 06/15/2006

RICHARD F. JAWORSKI  
Cooper & Dunham LLP  
1185 Avenue of the Americas  
New York, NY 10036

EXAMINER

MCPHERSON, JOHN A

ART UNIT PAPER NUMBER

1756

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/836,144

Applicant(s)

IWASAKI, HIROKO

Examiner

John A. McPherson

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12 and 16-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12 and 16-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/1/06 has been entered.

### ***Response to Amendment***

2. The Amendment filed 3/1/06 successfully overcomes the rejections set forth in paragraphs 2-4 and 6 of the Office Action mailed 11/3/05. Accordingly, these rejections are withdrawn.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,902,584 to Uchiyama et al. (Uchiyama). Uchiyama discloses an optical recording medium comprising a recording layer on a substrate and a protective layer,

Art Unit: 1756

wherein the protective layer comprises  $\text{SiO}_2$ ,  $\text{Si}_3\text{N}_4$  and a divalent metal oxide (such as  $\text{MgO}$  and  $\text{ZnO}$ ), and optionally other members such as  $\text{Al}_2\text{O}_3$  and  $\text{AlN}$ . The molar ratio of the silicon oxide to the silicon nitride ranges from about 50:50 to 90:10. See the abstract; column 4, lines 30-59; and Tables 2-4. It is the position of the Examiner that silicon nitride inherently has a thermal conductivity greater than or equal to  $10\text{W/m.deg}$  when in the bulk state, because thermal conductivity in the bulk state is a material dependent property. Additionally, Uchiyama discloses the recording layer may be made of a phase conversion type material. See column 6, lines 62 to column 7, line 17 and column 25, lines 3-4.

With respect to claims 18-21, it is the position of the Examiner that the statements "for use with the phase variation type data recording layer in a EFM modulation type recording system" and "for use with a recording mechanism which uses melting and rapid cooling of the phase variation type data recording layer" are statements of intended use for the claimed recording medium, and therefor do not provide a patentable distinction between the presently claimed recording medium layer and the recording medium of the applied prior art.

However, Uchiyama does not disclose providing a reflective layer in the phase variation type data recording medium.

The Examiner takes Official Notice that it is well known in the art to provide a reflective layer in a phase change optical recording medium, so as to provide the known benefits of increasing reflectivity and discharging heat. It would have been obvious to one skilled in the requisite art to provide a reflective layer in the optical recording

medium of Uchiyama because it is known in the art that a reflective layer increases reflectivity and assists in discharging heat in an optical recording medium of the phase change type.

4. Claims 12 and 16-23 rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,902,584 to Uchiyama et al. (Uchiyama) in view of US 5,156,693 to Ide et al. [reference AE of the Information Disclosure Statement filed 4/17/01] (Ide). The disclosure of Uchiyama is discussed above in paragraph 3. However, with respect to claims 22 and 23, Uchiyama does not disclose a phase variation type recording layer substantially constituted by Ag, In, Sb and Te.

Ide discloses an information recording medium comprising heat resistant protective layers, a reflective layer which reflects light and/or discharges heat, and a recording layer which comprises a recording material of the composition AgInTeSb. See column 3, lines 3-16 and column 4, lines 32-40. It would have been obvious to one skilled in the requisite to utilize AgInTeSb, as taught by Ide, as the phase conversion type material in the optical recording medium of Uchiyama because it is taught that AgInTeSb is a phase-change type recording material which exhibits a long life expectancy, improved C/N and writing ratios, and improved writing and erasing sensitivities.

5. Claims 12, 16 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,156,693 to Ide et al. [reference AE of the Information

Disclosure Statement filed 4/17/01] (Ide) in view of US 4,920,007 to Sawamura et al. (Sawamura). Ide discloses an information recording medium comprising a reflective layer and a recording layer which comprises a recording material of the composition  $\text{AgInTeSb}$ , wherein the recording medium further comprises protective layers made from various oxides (exemplified by  $\text{SiO}_2$ ) nitrides (exemplified by  $\text{Si}_3\text{N}_4$ ), sulfides, carbides, or mixtures thereof. See column 3, lines 3-16 ; column 4, lines 32-40; and column 4, line 63 to column 5, line 3. Furthermore, Ide discloses in Example 1 an optical disc comprising a substrate, a first heat resistant protective layer of  $\text{Si}_3\text{N}_4$ , a recording layer of  $\text{Ag}_{11}\text{In}_{11}\text{Te}_{23}\text{Sb}_{55}$ , a second heat resistant protective layer of  $\text{Si}_3\text{N}_4$ , and a reflecting layer. See column 5, lines 53 to 63.

With respect to claims 18-21, it is the position of the Examiner that the statements "for use with the phase variation type data recording layer in a EFM modulation type recording system" and "for use with a recording mechanism which uses melting and rapid cooling of the phase variation type data recording layer" are statements of intended use for the claimed recording medium, and therefor do not provide a patentable distinction between the presently claimed recording medium layer and the recording medium of the applied prior art.

However, Ide does not disclose utilizing a protective layer comprising silicon dioxide mixed with silicon nitride in a molar ratio of 10-85% silicon nitride.

Sawamura discloses an optical recording medium provided with a protective layer of an oxide-nitride mixture, wherein the oxide includes silicon oxide and the nitride includes silicon nitride. The nitride and oxide are mixed in a ratio of 9:1 to 1:9,

exemplified by a layer comprising  $\text{Si}_3\text{N}_4$  and  $\text{SiO}_2$  in weight proportions of 6:4. See the abstract; column 2, lines 48-51; column 3, lines 1-9; and Example 1. It is the position of the Examiner that silicon nitride inherently has a thermal conductivity greater than or equal to 10W/m.deg when in the bulk state, because thermal conductivity in the bulk state is a material dependent property. It would have been obvious to one skilled in the requisite art to utilize a mixture of  $\text{Si}_3\text{N}_4$  and  $\text{SiO}_2$ , as taught by Sawamura, as the material of the protective layer in the recording medium of Ide because it is taught that such a protective layer provides for superior durability and adhesion as compared to oxides and nitrides alone.

### ***Response to Arguments***

6. Applicant's arguments filed 3/1/06 have been fully considered but they are not persuasive. With respect to the rejection over Uchiyama, Applicant argues that this reference does not disclose a phase variation type recording layer substantially constituted by Ag, In, Sb and Te. However, this limitation has been removed from independent claims 12 and 16 by the Amendment filed 3/1/06 (it is now present only in new dependent claims 22 and 23). Furthermore, while Uchiyama does not explicitly disclose providing a reflective layer, it is well known in the art to provide a reflective layer in a phase change optical recording medium. This is supported by the many phase change recording media references of record in the present application.

Additionally, Applicant argues that because Sawamura and Uchiyama are not concerned with the thermal effects within the recording media during recording, erasing

and overwriting, one skilled in the art would not have looked to modify the optical recording medium of Ide according to the teachings of Sawamura and Uchiyama regarding the constitution of the heat-resistant protective layer. However, the fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. McPherson whose telephone number is (571) 272-1386. The examiner can normally be reached on Monday through Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 09/836,144

Page 8

Art Unit: 1756

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John A. McPherson  
Primary Examiner  
Art Unit 1756

JAM  
6/7/06